ENTERPRISE LEAN

BUSINESS CASE

Prepared by the
Drive to Excellence Program Office

January 2008

Table of Contents

A Business Initiative Identification

Initiative Name	**Enterprise LEAN**
Executive Sponsor	Dana Badgerow
Business Case Owner	Kathy Sibbel

B Short Description

Incorporate "Lean Thinking" principles into the culture of the State of Minnesota Executive Branch.

Create an Enterprise Lean management function and process to apply Lean principles and practices via a methodical, planned approach into all areas of the State of Minnesota Executive Branch by:

- ✓ Conducting educational awareness and methodology training, and eventually developing agency-trained experts;
- ✓ Facilitating and assisting initial projects to demonstrate Lean's promise and to celebrate initial successes;
- ✓ Providing pre-designed project toolkits and materials;
- ✓ Consulting to identify and prioritize potential projects;
- ✓ Offering consulting staff to assist with continuous improvement project; and
- ✓ Measuring, tracking and communicating performance results.

C Executive Summary

The mission of Drive to Excellence is to create a long-term solution for the challenges and opportunities that are ahead of the State from changing citizen and business demands for faster, better and more cost-effective services, to the pressures to do more with fewer budget dollars and an already shrinking workforce. These challenges require a new way of thinking – **Lean Thinking**.

Lean is a continuous improvement philosophy, which has been successfully used in manufacturing environments since post World War II. Typical gains of 25 percent in productivity, and reductions of 90 percent in work-in-progress, 50 percent in floor space and 75 percent in travel distance are real and immediate. Lean works -- quickly. It is results based and measurable. Sustainment of improvements, the most difficult aspect of lean, requires ongoing action by leaders to remove obstacles and create new behaviors that support a culture of continuous improvement. Faith and good intentions are replaced with a bias-for-action.

And now Lean is making its way into services organizations with dramatic results. Lean seeks the involvement of all workers in the elimination of waste and the adding of value to their work. It is simple and based on common logic, but also has a disciplined approach with well-developed tools, such as Kaizen events and 5S, to identify and retool inefficient processes.

Lean also supports the ongoing use of consistent performance measures. Managing performance is equal parts measuring performance and improving performance. Quality guru Dr. W. Edwards Deming's message was simply that **you can't manage what you can't measure**.

Note that Lean must not be seen as a tool for head count reduction. This misses the purpose of Lean, which is to create value through eliminating waste. As the State improves its processes, it will be able to reallocate its shrinking productive resources onto new greater value-creating work.

Therefore, the Enterprise Lean approach offers the State opportunities for:
- ✓ Better utilizing the talents of our precious workforce;
- ✓ Increasing work efficiencies to any workflow process, which is essential to every worker's job;
- ✓ Reducing waste in the areas of defects/errors, overproduction, transportation, movement, waiting, inventory, over-processing and underutilized workers;
- ✓ Stretching our limited budgets;
- ✓ Cutting time needed to complete finished work (such as issuing a license), feet of floor space leased by an agency, and energy (heat, lighting,) expended to support an area;
- ✓ Introducing a standard, simple and practical methodology with common practices, tools and language;
- ✓ Systematically reporting performance measures and accomplishments;
- ✓ Propagating collaboration among agencies through networking, and sharing "best practices;" and
- ✓ Fostering a continuous improvement culture, which provides ever-increasing quality service to Minnesota.

As with every successful enterprise initiative, an unwavering leadership commitment is critical. Executive ownership and commitment is essential to making continuous improvement a part of the State's culture. With our workforce shrinking, our services shifting, financial resources at set and declining limits, and our customer base demanding more, we must work smart and **think "Lean."**

D Project Background

With nearly 50% of the state's workforce eligible to retire by 2015, and with no assurance of the state's ability to backfill these retiring employees—both in terms of skill, and certainly in terms of process knowledge—it is time now to put initiatives in place to prepare us for the loss of critical human capital. The Drive to Excellence project entitled "Every Employee Counts" will provide state agencies with a number of tools to deal with workforce development and long-range workforce planning.

However, it is also recognized that we must provide agencies with tools for dramatic process redesign. **Enterprise Lean** will be deployed as the State's preferred process improvement and redesign tool because of its demonstrated results and relative ease to understand and apply. (See Appendix A – List of Local Companies and How They Apply Lean).

A Lean Primer

What is Lean?

Lean is a philosophy that seeks the involvement of all workers in the elimination of waste and the adding of value in every step of the process. It is a collection of principles, methods and tools that improve the speed and efficiency of any process. Although Lean has its roots in manufacturing, it works just as effectively in service organizations, and has been successfully applied in organizations across all sectors.

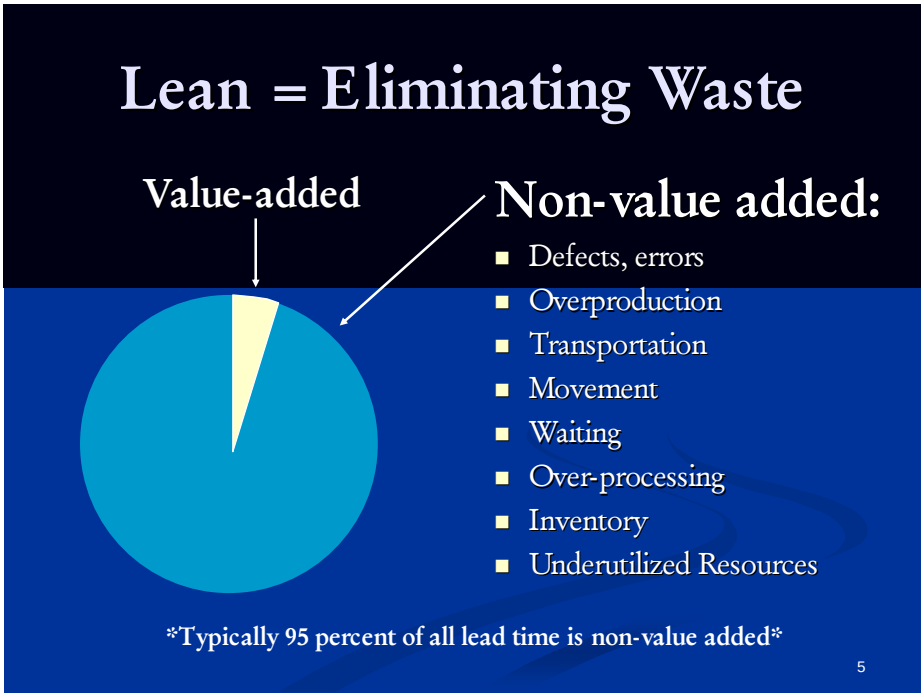
Lean is often seen as a companion to Six Sigma. Six Sigma was first developed as an internal quality initiative at Motorola, which won the inaugural U.S. Malcolm Baldridge National Quality Award in 1988. Six Sigma is a problem-solving methodology used to identify and control variation in the processes that most affect performance and, in the private sector, profits. Lean or Lean Six Sigma has a broader framework and establishes a new set of roles and procedures inside an organization and its culture to continuously generate improved results.

How Does Lean Work?

It is called "Lean" because it uses less of everything as compared to traditional methods. It provides a way to do more and more with less and less – less human effort, less materials, less time and less floor space. Lean recognizes that for most processes only 5% of activities (or time to perform the activities) add value for the customer, which means that 95% are either necessary non-value adding activities (such as legal, regulatory, customer mandated) or are waste.

By clearly defining value for a specific service or product from the customer's perspective, non-value added activities and waste can be targeted for removal. Eliminating waste is the greatest potential source of improvement in process performance and customer service. Once waste has been identified, processes are redesigned to allow services (child support, veterans care), information (financial reports, demographics) or products (drivers licenses, work permits) to flow through the new process with reduced interruption.

The objective of Lean Thinking is to create the most value while using the fewest resources. This is done by eliminating the eight types of waste:



Types of Waste	Examples
1. Defects	Incorrect data entry
2. Overproduction	Preparing extra reports, reports not acted upon, multiple copies in data storage
3. Transportation	Extra steps in process, distance traveled
4. Movement	Extra steps, extra data entry
5. Waiting	Processing monthly, not as the work comes in (i.e. financial closings)
6. Over-processing	Sign-offs and hand-offs
7. Inventory	Transactions not processed
8. Underutilized Resources	People doing unchallenging work

Lean has a bias for action. Its primary tool is the rapid improvement "Kaizen" event. Kaizen (pronounced KI–zen) literally means "change for the better." It is typically used to denote a short term (one-to-five-day) focused process improvement effort during which a multi-stakeholder project team works full-time to analyze processes,

identify unnecessary steps and assign tasks to implement improvements. A Kaizen is most effective when led by a trained, professional facilitator.

Lean in the Services or Office Environment

Deployment of Lean in the transaction processes – business processes whose primary role is to transact information or data - is escalating. This includes processes within finance and accounting, contracts, procurement, legal, human resources and information technology. Just because the State is not manufacturing physical products doesn't mean its processes are free of waste. In office environments, there is more waste in energy, human effort, time and floor space, than in direct materials.

As new systems are implemented, new governance structures are deployed, and new laws are passed, the State has abundant opportunities to review and improve its processes. Lean can be applied when designing standards and procedures, structuring governance teams, and implementing new web-based systems for current enterprise projects, including Grants Management, MAPS, Real Property, eLicensing, Fleet, Enterprise Email, and the Utility Service Consolidation program, as well as for agency-specific projects.

Current situation/problem

A number of State agencies have individually been using Six Sigma and Lean methodologies and are at different stages of maturity in their use.

Pollution Control Agency – Starting in 2003, has initiated 21 Six Sigma Agency projects and nearly 50 division projects focused on process standardization. It is now researching Lean Six Sigma methods. (See Appendix B)

Department of Corrections – Starting in 2004, has conducted eight Lean projects with two more underway. DOC's projects included back-office processes (payroll processing, HR hiring) as well as actual manufacturing processes (MINNCOR's manufacturing and delivery of chairs). (See Appendix B)

Veterans Home Board – Is entering into discussions to partner with Winona State's Center for Integrated Health Science Education and Practice through an inter-agency agreement to transform their agency into a Lean culture, building a sustainable process for continually improving in the area of health care. (See Appendix B - *Veterans Homes Participate in Lean Conference* – Home Base News, September 2007)

Department of Administration – Awarded a contract to Minnesota Technology this year to provide an overview of Lean and apply Lean methods to four "pilot" projects. (See Appendix B - *A New Look for Lean* Minnesota Technology, October 2007)

Department of Natural Resources – The DNR has trained twenty people to the green belt level and one black belt. The implementation is measured and currently informing process management, design and improvement in the shared services units of the agency. The DNR is examining a broader engagement for the immediate future.

And other Agencies may also be exploring these concepts. The State of Minnesota has the potential to achieve exponential results by deploying Lean Thinking as a disciplined, enterprise-wide effort instead of through individual agencies that randomly explore and apply the techniques with a range of results. An enterprise approach will:

- ✓ Standardize training programs;
- ✓ Provide consistent program language, tools, and instructions on how to use the tools;
- ✓ Provide economies of scale and skill in developing an using Lean resources;
- ✓ Connect agencies via a healthy network for learning and sharing of "best practices;"

- ✓ Provide a vehicle for communicating performance measures and celebrating accomplishments;
- ✓ Improve financial, operational, organizational and technological performance;
- ✓ Increase service to citizens and other customers; and
- ✓ Establish statewide priorities.

Business needs/opportunities

So why now?

There are ever increasing external challenges facing state government that make it the right time to pursue Lean Thinking:

- ✓ Our workforce is aging. We will be faced with an unprecedented number of retirements in the next few years. There simply will not be enough people in the labor force to fill behind those who will be retiring.
- ✓ We are increasing operations in a competitive environment. Customers' expectations around the quality, timeliness, and in some cases the prices of our services, continue to rise.
- ✓ We are being asked to meet customers' demands with fewer budget dollars.
- ✓ The application of Lean principles into our work environment can help address this challenge without undermining the value of the services we deliver to our customers.

Government is under increased pressures to be more accountable and transparent to its citizens.

- ✓ Earlier this year, Minnesota participated in the Pew Center States' 2008 Government Performance Project. The results – *Grading the States 2008* – will be published in March 2008.

- ✓ Minnesota's twenty-five cabinet departments and one other agency (Explore Minnesota Tourism) recently updated their priority goals with related performance measures and results on the Department Results website www.departmentresults.state.mn.us

> *"Government must be accountable to the people it serves. We've made a commitment to Minnesotans that state government is going to work better, faster, and show meaningful results for taxpayer dollars. We've set bold goals for the State of Minnesota, and we intend to deliver. Through this website, you can track our progress as we work toward providing the highest quality of government service to you, the citizens of Minnesota."*
>
> -Governor Tim Pawlenty

E Project Description

Objective

Adopt "Lean Thinking" principles into the culture of the State of Minnesota Executive Branch. An organization that uses less of everything – supplies, effort, time, space – is a "lean" and, hence, more effective organization.

Using Lean principles, the State will focus on the elimination of the eight wastes, primarily in the form of unnecessary reports, paperwork, approval processes, worker actions, information retrieval, backlogs, and confusing or duplicative forms. Agency workers will be poised to push for and implement faster, more efficient processes that require less effort, less inventory, less time and less space while also being highly responsive to their customer.

Lean methods will provide ways to identify key performance indicators, set benchmarks, and then track our progress in providing better, faster and more efficient services to Minnesota.

Scope

A number of individual agencies have varying experiences with Lean and Six Sigma. An Enterprise Lean initiative will provide awareness of Lean principles, and consistent training on Lean methods and support with initial projects to ensure that all Agencies understand its potential and can benefit from its use.

F Benefits

Other resulting benefits in four key business areas are described:

Financial Benefits	Organizational Benefits
✔ Enables cost avoidance ✔ Lowers cost of production and servicing ✔ Enables faster return on investments ✔ Increases cash flow ✔ Increases profitability of products/services ✔ Increases revenue of existing sources	✔ Improves the ability to serve customers ✔ Builds organization's reputation ✔ Creates new customer opportunities ✔ Fosters vision and mission ✔ Improves employee morale and creativity
Operational Benefits	**Information Technology Benefits**
✔ Decreases employee work loads for undesirable work ✔ Eliminates non-value added activities ✔ Improves internal communication between departments and groups ✔ Improves use of workspace ✔ Increases employee and process productivity ✔ Reduces cycle time ✔ Reduces external inputs to processes ✔ Reduces person-hours and process steps ✔ Simplifies processes and workflow steps	✔ Decreases maintenance/support costs ✔ Improves application/system performance and system utilization rate ✔ Increases efficiency of support activities ✔ Maintains intellectual property investment ✔ Preserves value of technology ✔ Reduces application/system variation (increases reliability) ✔ Reduces paper documentation requirements ✔ Strengthens application/system security ✔ Enables IT to meet customer expectations for service levels and cost reduction

Other States' testimonials prove that applying Lean principles will result in a better way to do our work:

State of Iowa

The State of Iowa launched a Lean initiative in 2003, with the assistance of one of their private industry customers, Pella Corporation. Their first effort focused on improving their environmental permit process in the Department of Natural Resources. Since then Iowa has conducted 70 Lean Kaizen events showing unprecedented results. (See Appendix C - *Lean Business Process Improvement in the Executive Branch of Iowa State Government*.) Earlier this year, Iowa established an Office of Lean Enterprise and hosted a Government Lean Exchange attended by 14 states and local governments.

State of Connecticut

The State of Connecticut's Department of Labor (CTDOL) used lean government techniques to re-engineer their training initiative. They successfully applied Lean to other customized job-training units' contract development and contract invoice processes as well as the business management unit's telephone work order initiation and procurement procedures. Teams automated processes and eliminated or modified reports, forms, approval processes, and worker process steps. The results were significant*:

- ✓ 119 steps eliminated, redesigned, or automated;
- ✓ 1,181 cycle time hours eliminated, redesigned, or automated;
- ✓ 33.5 staff hours eliminated, redesigned, or automated on a unit basis for four processes;

- ✓ More that $500,000 in staff time saved over the course of a year; and
- ✓ Intangible benefits including superlative quality, enhanced communications, empowered staff, reciprocal worker respect, and delighted customers.

* *Lean Government (is not an Oxymoron) A Connecticut agency in efficiency's court* (July 2006) – Jan Hasenjager

G Implementation Strategy

A number of activities have already been started to launch the Enterprise Lean initiative.

1. The function of Enterprise Lean management has being established in the Drive to Excellence Program Office, within the Department of Administration. A Lean Continuous Improvement Leader is being hired to direct the effort.

2. A Request for Proposal (RFP) was issued and a contract awarded to a professional Lean consultant to assist the Lean Office in developing an implementation and deployment plan, designing and facilitating training and communications across the Executive Branch, and providing Lean Master Facilitation for a number of initial projects within State agencies.

3. Four pilot projects have been initiated within the Department of Administration as "proof of concept" of the Lean methodology. All used a Lean tool known as "Value Stream Mapping" to understand their current processes, visualize future improvements and make assignments to implement the improvements.

4. A number of agencies, including the Department of Health and the Office of Enterprise Technology, have expressed interest in Lean and have identified their initial processes for Lean application.

5. A 5S training program has been developed and a pilot training session held. 5S is a simple and practical Lean tool which focuses on organizing work space to eliminate clutter (waste) and helps workers to optimize their work flow and to resolve filing and office space needs

6. An outreach to the private sector through the Minnesota Business Partnership has opened communications with a number of Lean Thinking organizations. Meetings have been held with Hormel, Ecolab and General Mills to seek their assistance and advice in incorporating Lean into a large organization. We may seek to establish a private sector advisory team.

7. An Enterprise Lean Steering Team is being assembled.

In addition, the anticipated work to be completed within the next six months includes:

- Steering Team chartered and a business plan developed.
- High-level training conducted for all agencies' upper management.
- Project training conducted within ten Agencies.
- Kaizen events launched within ten Agencies
- Communication plan developed.
- Networking group established.
- Student intern program plan developed (with area Industrial Engineers).
- Long-term (2 to 3 year) training and rollout plan created.

H Costs

Funding for the Lean Continuous Improvement Leader in the Drive to Excellence Program Office, and the Lean Consultant has been provided by the Department of Administration. The consultant's contract will expire after six months.

The dollar outlay of implementing Lean is minimal. But a thorough and successful implementation does involve dedicated workforce time to review current work and disciplined commitment to incorporate and sustain improvement into work processes.

Based on the State's workforce, citizen demands and budget pressures, and Lean's proven reputation, we cannot afford to not to implement Lean.

Appendix A – Local Companies and How They Apply Lean

Local Company Name - Industry Type

- **Where They Are Applying Lean**

Landscape Structures - Commercial Playground Equipment

- Finance, Employee on-boarding, Utility costs, Manufacturing, Distribution, Playground Design, New Product Development

Braas Company - Distributor

- New Hire Process, Sales, Order Entry, Accounts Receivable, Accounts Payable, Purchasing

Japs-Olson - Printing

- Maintenance, Facilities, Data Processing, Scheduling, Production Processes, Customer Service

Wilson Tool - Manufacturing

- Purchasing, Sales ,Manufacturing, Design, Order Entry, New product development

Ridgeview Medical Center - Healthcare

- Lab Layout, Linen Distribution, Doctor's Rounds, Nurse Scheduling, Home Health Care

Ev3 - Medical Device Manufacturer

- Purchasing, Manufacturing, kanban, New product introduction

Renewal by Andersen - Windows/Doors

- Manufacturing, Retail Operations, Distribution

Scherer Brothers - Retail Building Supply

- Manufacturing, Load Building, Order Entry, Design/Layout, Yard Layout, Inter-company transfers

E.A. Sween - Food Products

- Distribution, Route Trucks, Sales, Sanitizing Process, New product development

Tapemark - Pharmaceutical Manufacturer

- New Project Introduction, Production, Quoting, New Process Design

Appendix B – State Agencies with Six Sigma and Lean Initiatives

Pollution Control Agency (PCA)

Working Smart of Environmental Protection – Improving State Agency Processes with Lean and Six Sigma – September 2006
http://www.epa.gov/lean/primer.pdf

The PCA launched its first Six Sigma project in 2003 – a National Pollution Discharge Elimination System (NPDES) wastewater permitting project. In a document developed through a collaborative, state-led process involving five states – Delaware, Iowa, Michigan, Nebraska and Minnesota – the PCA reported that it has initiated 21 Six Sigma Agency projects and nearly 50 division projects focused on process standardization. The Agency has developed internal Six Sigma methodology training and leadership capacity, and has used lean tools in addition to Six Sigma process analysis. In addition to tangible measured performance improvements, some Agency-wide changes have resulted:

- Greater staff ownership of projects and processes;
- An increased ability to focus on "mission critical" work;
- Improved internal Agency communication;
- Improved communication with external stakeholders;
- Integration of a continuous process improvement culture into the Agency; and
- Improved relations with the regulated community.

Department of Corrections

Minnesota Department of Corrections Quality Initiatives Summary Report, October 2007

Minnesota Department of Corrections

Quality Initiatives Summary Report

Background

In 2004, the Pawlenty Administration reintroduced the state to organizational "quality improvement" through sponsoring training on Six Sigma and Lean. These are management tools for reducing errors and streamlining work processes widely used in best-run organizations like Toyota, 3M, Hewlett Packard, and others.

Consistent with the Department of Corrections (DOC) *Strategic Plan* goal of "Strategic and Efficient Use of Resources," staff successfully completed training and were awarded Green Belts to signify their competence with basic statistical process control and principles of Lean. Projects were undertaken to maximize state resources and improve operational effectiveness.

Initial success of the projects led to training of managers at the Carlson School of Management's Joseph M. Juran Center for Leadership. Training was designed to learn how to strategically deploy all forms of quality tools to better manage the agency.

Today, more teams of DOC employees are being trained to learn the quality tools.

Six Sigma and Lean Projects

- MINNCOR Prison Industries improved efficiency in manufacturing and delivering chairs to customers.
- The Minnesota Correctional Facility (MCF)-Stillwater reduced the cost of offender linens through reduction in losses.
- The MCF-Stillwater increased efficiency of distributing purchased commodities (pencils, toilet paper, chairs, etc.).
- Human Resource Management reduced the number of days to fill vacancies.
- Human Resource Management decreased the number of errors in employee pay transactions.
- The Information & Technology Unit improved access to technical support and information by staff and other entities.
- The MCF-Faribault decreased the number of staff hours to administer the offender job assignments process.
- An interdisciplinary team of managers and staff streamlined payroll processes to increase accuracy in recording Family Medical Leave Act absences.

Current Projects

- A DOC interdisciplinary team is enhancing public safety and efficiency of the prison readmission process for offenders whose community supervision is revoked.
- Improving offender community reentry by coordinating offender needs and programming between facility and community supervision staff:
  - Piloting a new case management process at the Challenge Incarceration Program
  - Revamping the case management process at the MCF-St. Cloud

1450 Energy Park Drive, Suite 200, St. Paul, Minnesota 55108 651.361.7200 TTY 800.627.3529 10/07

Veterans Homes Board (Veterans Affairs)

VETERANS HOMES PARTICIPATE IN LEAN CONFERENCE

Written By: Nancy Dahl, Human Resource Director

In July, I attended the Lean Conference along with Pam Barrows, Administrator at our Luverne Veterans Home. Our initial question was, "what does it mean to be a Lean Healthcare organization?" With today's global market, and the increasing financial challenges health care organizations face, many are finding they have fewer and fewer chances of survival, unless they can somehow start managing their inefficiencies. It is estimated that our health care systems today are participating at an average rate of 60-65% waste. Only 35-40% of the services are value added. Lean Healthcare can change those statistics. Lean Healthcare is about continuous process improvement: eliminating waste, increasing capacities, building efficiencies; it is giving health care workers the ability to focus on the needs of the resident first; and the ability to empower the front-line staff.

Nancy Dahl, Human Resources Director

Lean Healthcare helps organizations build safety, consistency, cooperation, quality, and better bottom line performance in their day-to-day operations by training and empowering leadership and staff, to use their skills and experience in ever-expanding ways. It helps build employee achievement and satisfaction for higher retention rates, and creates a culture of continuous improvement that will continue to add to the bottom line for years to come.

The Veterans Homes Board is pleased to announce we are entering into discussions to partner with Winona State's Center for Integrated Health Science Education and Practice through an inter-agency agreement to transform our agency into a lean culture, building a sustainable process for continually improving.

We look forward to developing an environment where change and tough conversations become partners so that relationships are strengthened and results improve; while building an effective team and creating a safe environment for participants to present new ideas while challenging old ones.

Department of Administration

A New LOOK for Lean

Think Lean is only for the manufacturing sector? Think again. Schools, health care providers, government agencies, and nonprofits alike are now using it to trim waste and boost productivity.

By Sara Gilbert
Photos by Patrick Kelly

Not long ago, Bob Tomaschko was overwhelmed with the number of spreadsheets he had to sift through on a daily basis.

Tomaschko, the director of compensation, retirement, human resources, and IS for Land O'Lakes Inc., was dealing with thousands of spreadsheets at a time. There were upwards of 1,200 just for the company's merit pay increase process, and another thousand or more for variable pay processes—programs that base a portion of the workforce's compensation on employee or team performance. All of those traveled back and forth between various members of the HR department and different managers at Land O'Lakes' headquarters in Arden Hills, as well to as its other business units around the country. Although the files could be shared digitally, many were also actually printed out and examined page after page after page.

"They were just massive spreadsheets," Tomaschko remembers. "You'd get them back in and all you could do was just roll them up. It was lots and lots of work."

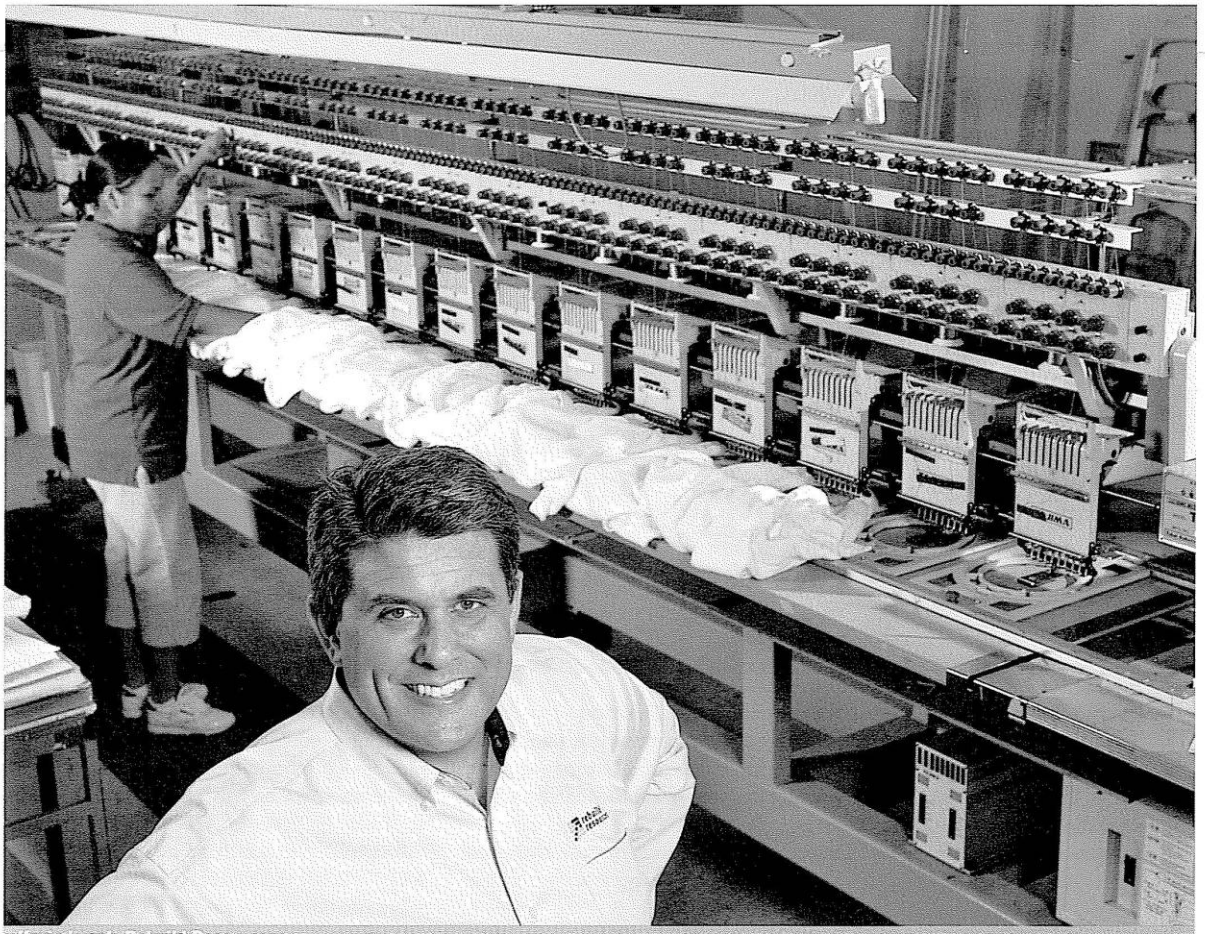
The time spent with spreadsheets was a symptom of a system that needed to be streamlined. Although the HR department had been diligent in creating processes that worked, it hadn't been able to keep them as clean and crisp as possible. "We had established a project management process," Tomaschko says. "But we were lacking a methodology to look at those processes and figure out what to do with them."

Tomaschko and his team investigated several sets of tools, from Six Sigma to a front-office variation on Lean manufacturing, a process committed to identifying and eliminating waste. After surveying the options, they found themselves leaning toward Lean—which, not coincidentally, had already been applied to Land O Lakes' production lines.

With the help of consultants from MTI, Tomaschko and the company's HR leadership team applied Lean tools—particularly value stream mapping, which dissects the value of every step involved in the flow of materials and information in a process—to their problem processes. Over a three-year period, they systematically knocked off one after another, from those merit pay and variable pay processes to time reporting and payroll integration. And one by one, they also knocked off the need for most of the cumbersome spreadsheets. "They're basically gone," Tomaschko says. "We don't even generate a single spreadsheet for variable pay anymore, and in merit pay, we've gone from 1,200 or so to maybe 50."

Productivity within HR has also increased; Tomaschko says that the department can "more rapidly and accurately transact the necessary HR business." Internal satisfaction has also improved, and the company has seen some hard savings as well. An open position in compensation was eliminated and the cost of outsourcing payroll integration to an outside vendor was cut completely. "It made a huge difference," he says. "You can improve a process until you understand how it works. That's what Lean did : It provided a disciplined approach to outlining the current state, then provided a mechanism for us to brainstorm ways to move to the desired future state."

Lean's reputation has been established primarily in the manufacturing arena. Since getting its start after World War II, the core attributes of the Lean philosophy—eliminate waste, improve quality, and cut production time and costs—have been used with success on production lines and manufacturing plants around the world. But in recent years, Lean tools have also been transferred to office settings and such industries as health care, education, banking, and government.



Kevin Lynch, Rebuild Resources

Power in the process

In fact, Lean can be applied to any place where processes are in place. "Lean is about process improvement," says John Connelly, MTI's director of product development. "It's not about manufacturing, it's about processes."

Lean's primary goal is to identify and eliminate waste. And although that waste may be most noticeable on plant floors, it exists at all levels and in every industry. Even those manufacturers that have already leaned their production lines can realize more benefits from taking those same tools to the office. "You can do a considerable amount of waste reduction in human resources, in bidding, quoting, even engineering," says Vicki Prock, an MTI business services specialist. "You can do a tremendous amount of streamlining on the plant floor, but if your accounting or bidding processes are still lengthy and cumbersome, you still have waste in there."

In a fiercely competitive global economy, reducing waste in every possible place may be the best way to maintain an edge over rival businesses—and not only in the manufacturing sector. "I don't know of any industry, any business unit, or any sector of the economy that hasn't been forced to ask, 'How can we be more efficient?'" Prock notes. "Everyone needs to be able to do more in less time. It just makes sense to eliminate waste."

Mary Connor, an MTI field specialist, sees Lean as the saving grace for businesses struggling to stay competitive. As it

Lean Teams at School

Glenn Pence, MTI's director of sales, remembers the moment the light bulb went off. He was describing the various Lean tools to a client within a school district. The client asked how they could apply to custodians and maintenance supervisors. That's when Pence thought about Training within Industry (TWI), a Lean tool that deals specifically with job instruction and job relations, among other concepts.

"Many of these people get no supervisory training," Pence says. "All of a sudden they're dealing with people issues and they struggle with them."

The TWI training was so successful with custodians and maintenance supervisors that schools began asking if the same skills would help food service employees. It made perfect sense to Pence. "That's a tough job," he says. "You've got this tiny window of opportunity to feed a large number of kids. Plus, you're working almost entirely with part-time help. There are a lot of people and instruction issues there."

In the year since that original conversation, Pence and MTI have worked with almost a dozen Minnesota school districts. So far, they've focused on custodians and maintenance supervisors, as well as food service staff, but Pence sees possibilities to expand the training into other school-related arenas as well. "It could go through the administrative realm as well," he says. "They're working with people all day long."

—S.G.

Vicki Prock, MTI

gets harder and harder to compete on commodities alone, she says, the value of services provided will become even more important to a company's success. Lean can help free up capacity to offer more and better services. "It's the hope for our economy," Connor says. "This is where we are going to see the big gains. This is where the competitive edge will come."

Tomaschko already knew about Lean when he helped introduce it to the rest of the HR department at Land O'Lakes. He had some experience with Lean tools at a previous job with Honeywell, for one thing, and since the company had already made a commitment to Lean on its production lines. It wasn't hard to convince the HR staff that its processes could be improved through value stream mapping and other Lean tools. "People realized that there was a better way to do things," he says. "We knew we needed to fix things here."

Connor says it often takes a Lean "champion" to introduce it in unfamiliar environments. Once someone has seen the tools at work, either in a manufacturing setting or elsewhere, they serve as firsthand witnesses to their beneficial impacts. Such is the case at the Minnesota Department of Administration, where Commissioner Dana Badgerow had seen the tools in action years earlier at a previous job. When it became obvious that the department would be facing a workforce shortage in the next decade (approximately 40 percent of its employees will reach retirement age in that time), her first response was to investigate the possibility of implementing Lean tools in a pilot project. Prock is now working with Badgerow to get that started.

"That's a huge amount of turnover, and there aren't huge leaps and bounds of folks coming along behind to take those jobs." Prock says. "The department must become more efficient—if for no other reason than that it won't have enough people to do all of the jobs. It simply won't have enough bodies."

At Rebuild Resources, a St. Paul nonprofit organization that helps recovering alcohol and drug addicts find meaningful employ-

"Everyone needs to be able to do more in less time. It just makes sense to eliminate waste."

ment, however, it took an outside suggestion to get the process started. Oakdale-based Century College was partnering with the organization to create training DVDs—but Rebuild's training system was in such disarray that it was tough to decipher where to start. The college put Rebuild in touch with MTI to see if it could help.

Because Rebuild Resources runs two manufacturing operations—a custom apparel and promotions business as well as a contract manufacturing service—the application of Lean might look more traditional than in a nonmanufacturing environment. But because it has a nontraditional workforce that is constantly turning over, Rebuild also has some striking differences from typical manufacturing scenarios. And as a nonprofit, it wasn't so much driven by improvements to the bottom line.

More important to President Kevin Lynch is making the "students," as participants are called, more employable when they finish the program. A thorough understanding of the Lean mentality—along with a signed certificate for going through the training—can certainly help. "The students are what's most important here," he explains. "Our goal is to make them more employable when they go out into the marketplace. Having Lean on their resume, having that certification and that background, makes them more desirable to some employers."

There have been other benefits as well. When the organization closed a facility in Blaine and consolidated of its operations to another plant in St. Paul, MTI used Lean to help Rebuild's management most effectively lay out the space. Now, despite cramming two operations into one location, production volume has increased. "Our production is up 30 percent," Lynch says. "That's with the same size staff."

That will have a ripple effect for the organization and its students. Lynch believes that Lean will allow Rebuild Resources to work with more companies, particularly in contract manufacturing. For one thing, leaner production lines can produce more in less time. And a Lean environment may be attractive to clients looking for the best value. "Because of Lean, we're a better business partner for these companies," Lynch says.

Lean resistance

For all it success over the years, Lean remains a mystery to many businesses and industries. Some people outside of manufacturing still think that "Lean" is synonymous with "layoffs," for example. And although sometimes positions are eliminated or consolidated in the process, that's never the sole intent. "We ask [potential clients] if their intention is to identify people to lay off," Prock says. "If that's the case, then we don't want to be part of it. But if the intention is to streamline, to become more efficient and more productive and to get rid of all the stupid headaches that make people crazy, then Lean can help."

Sometimes, the language of Lean also needs to be tweaked. A term like "inventory control" may be offensive in the health care field, for example, where sometimes the "inventory" in question breathes and has a pulse. Connelly says that's because the terms were developed, just as the concept was in relation to manufacturing. All that's needed, he says, is an apt translation—"inventory" can easily be swapped for "patients" or "occupants" where appropriate. "The concepts apply, but the terms that are commonly used don't," he says. "So we have to change the language."

When she was working with Rebuild Resources, Connor found it was best to talk in terms of "continuous improvement" and "operational excellence" rather than simply using Lean as the catch phrase. To the managers, many of whom came from a social services background, and even to the students themselves, Lean was a scary term. "To them, Lean meant job cutting," she says. "That's not what it was about at all."

Identifying how Lean can help is sometimes a challenge as well. Steps that seem concrete on the plant floor are sometimes less clear in an office setting. "It's harder to see and understand the different processes," says David Ahlquist, an MTI field specialist. "In this case it's about the flow of information, not the flow of a product."

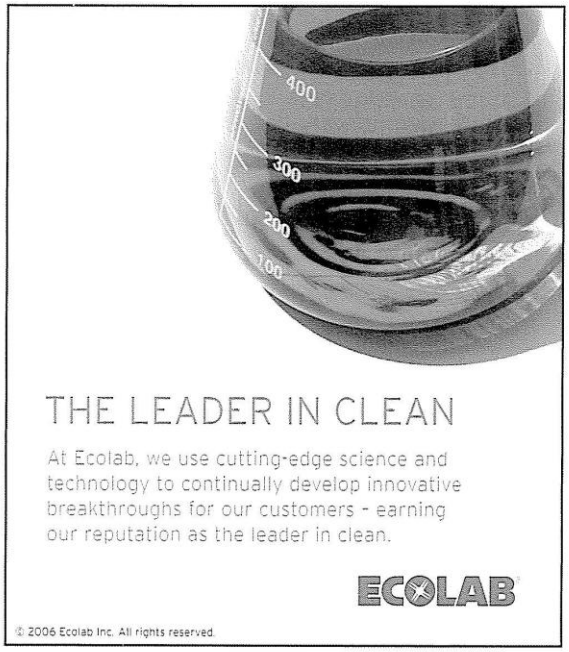
Ahlquist's solution is to take a visual survey of an office setting. "In manufacturing, I'd look for where the widgets pile up," he says. "In an office, I look for where the paperwork piles up. That's where you see the extra inventory."

Informational "inventory" might also pile up in e-mail inboxes or on laptops, Connor says, making it almost invisible to the untrained eye. "If you can't see it, it's harder to talk about," she says. But once a process can be identified, she adds, then value stream mapping can most often be applied.

Even at home. Lean consultants love to talk about how anything and everything can be leaner, sometimes to the chagrin of those they live with. "Some Lean experts talk about how miserable they make their respective spouses," Prock laughs. "They're forever leaning up the kitchen. I heard one guy say, 'My wife says that if I Lean the refrigerator one more time…'"

Sara Gilbert is a Mankato-based freelance writer.

For more information on MTI's Lean consulting services, contact Glenn Pence, 320-492-7996, 800-325-3073, gpence@mntech.org.



Appendix C – State of Iowa Results

Lean Business Process Improvement in the Executive Branch of Iowa State Government As of 11/09/07

Dept Key	Sponsoring Department	FY '04	FY '05	FY '06	FY '07	FY '08	TOTAL	FY '08 Scheduled
ABD	Alcoholic Beverages Division (Dept of Commerce)			1	1		2	
DAS/GSE	Dept of Administrative Services, General Services Enterprise			1			1	
DAS/HRE	Dept of Administrative Services, Human Resources Enterprise				1		1	2
DCA	Dept of Cultural Affairs	1	2	2	1		6	
DED	Dept of Economic Development		1	1	1		3	1
DHS	Dept of Human Services		1	1	2		4	
DIA	Dept of Inspections & Appeals			1			1	
DNR	Dept of Natural Resources	2	9	4	11	1	27*	2
DOC	Dept of Corrections		1	1			2	
DOM	Dept of Management				2		2	
DPH/BME	Dept of Public Health, Board of Medical Examiners			1	1		2	
DPS	Dept of Public Safety		2	3	1	1	7	
IBEE	Iowa Board of Educational Examiners			1			1	
ICN	Iowa Communications Network			1			1	
IDR	Iowa Dept of Revenue			1			1	
IFA	Iowa Finance Authority				1		1	
IVH	Iowa Veterans Home		1	2	1	1	5	1
IWD	Iowa Workforce Development		1	1	2		4	
OEI	Office of Energy Independence					1	1	
TOTALS		**3**	**18**	**22**	**25**	**4**	**72**	**6**

* First event occurred in FY'03

Dept	Year	Business Process	Old Process	New Process
ABD	2006	Accounting - Class E Invoices & Taxation Process	Delays reduced 81%; steps reduced 62%	
ABD	2006	Order Entry	Steps reduced 65%; delays reduced 33%	
DAS-GSE	2006	Vehicle Fleet Specifications	Reduced bid packages from 15 to 2	
DAS-HRE	2006	Grievance Resolution	Delays reduced 94% - 100%	
DCA	2004	Section 106 Permits	142 steps, 30 delays, 29 hand-offs	74 steps, 8 delays, 11 hand-offs
		State Historical Preservation Office: HUD submittals	50% defective	100% complete

Dept	Year	Business Process	Old Process	New Process
		State Historical Preservation Office: Review Comments Turnaround Time	20 days	13 days
DCA	2005	Arts Council Grant Application	Major 10 to 12 weeks	Major 4 to 6 weeks
DCA	2005	Great Places Program Design	Concept	Program designed in 4 days
DCA	2006	Historical Resource Development Programs Grants	Steps reduced 68%; delays reduced 93%	
DCA	2006	State Historical Museum - Exhibits	Delays reduced 100%; steps reduced 80%	
DCA	2006	State Historical Museum - Collections	Steps reduced 39%; hand-offs reduced 75%	
DED	2005	Business Financial Assistance: Review Applications and Develop Recommendations	Improved timeliness, accuracy, consistency and communication of process	
DED	2005	Client Management System	• Identified "best management practices" for managing economic development projects; • Implementing standardized practices to enhance internal and external communication with partners; • Base lining project "leads" to better establish goals for moving more "lead" into projects.	
DED, DNR, Iowa Waste Reduction Center	2007	Environmental Business Assistance	• Created SOP for call handling • Defined standard web portal for customers • Captured perceived deficiencies in web navigation	
DHS	2005	FIP Diversion	Refocused program	
DHS	2006	Interstate Compact for the Placement of Children	Delays reduced 79%; decisions reduced 83%; loop-backs 99%	
DHS	2006	Organizational Design & Workflow (4 processes)	Steps reduced 55% to 84%; delays reduced 33% to 66%	
DHS	2006	Child Abuse Appeals	Steps reduced 42%; hand-offs reduced 46%	
DIA	2006	Health Facilities Complaint Intake	Delays reduced 80%; steps reduced 56%	

Dept	Year	Business Process	Old Process	New Process
DNR	2003	Air Quality New Source Construction Permits	62 days	6 days
DNR	2004	Air Quality Complex Permit	214 days	180 days
DNR	2004	Clean Water Construction Project Permits	28 months	4.5 months
DNR	2004	Landfill Permits	187 days	30 days
DNR	2004	Leaking Underground Storage Tanks Corrective Action Decision	1,124 days	90 days
DNR	2004	NPDES (Wastewater)	425 days	15 days
DNR	2004	Sovereign Lands Permits: Environmental Reviews	163 days	86 days
DNR	2005	Animal Feeding Operations Construction Permits	66 days	36 days
DNR	2005	Floodplains Permits	Implemented: • Permit redesign • Pre-design meeting & outreach strategy • Database design	
DNR	2005	Land Acquisition: Best Case	2 years	9 months
		Land Acquisition: Worst Case	22 years	6.3 years
DNR	2005	Legal Services: Administrative Orders	Consent orders, unilateral orders, Attorney General referrals	40%-90% improvements in lead time reduction
DNR	2005	Magazine Production	Allows on-time quality production while meeting day-to-day communication needs	
DNR	2005	Magazine Redesign	New magazine designed for January '07 launch	
DNR	2005	Manure Management Plans	Incomplete submittals reduced by 50%	
DNR	2005	Vehicle Dispatch	Pool vehicles reassigned to DAS-GSE	
DNR	2006	SIFIC (State of Iowa Facilities Improvement Corp.)	Delays reduced 58%; lead-time reduced 53%; Steps reduced 29%	
DNR	2006	SRF Cross-cutters	Delays reduced 40%; Steps reduced 32%	
DNR	2006	AQ New Source Construction Permits	Steps reduced 19%; hand-offs reduced 33%	
DNR	2006	Open Feedlots Construction Permits	Steps reduced 68%; loop backs reduced 87%	

Dept	Year	Business Process	Old Process	New Process
DNR	2006	Regulatory Assistance Mapping	Inventoried current services provided by IDNR and IDED business and regulatory assistance services.	
DNR	2006	Honey Creek State Resort Park	Established process for managing all aspects of the development and operation of the first state resort park.	
DNR	2007	Snowmobile & ATV Titling and Registration	Steps reduced 90%; loopbacks reduced 100%; delays reduced 96%	
DNR	2007	Environmental Emergency Notification	Delays reduced 67%; lead-time reduced 35%	
DNR	2007	ESD Staff Allocation	Implemented: • Set top 10 priorities for workload • "Blurring" lines of field offices • Communication /Teamwork between field offices	
DNR	2007	Construction Procurement Process	• Reduced the # of steps from 258 to 139 (46%) • Reduced the # of handoffs from 104 to 40 (62%) • Reduced the # of decisions from 27 to 12 (56%)	
DNR	2007	Water Quality Standards (WQS) 4 states and EPA	Iowa DNR, along with Nebraska, Kansas and Missouri worked together with EPA Region 7 and EPA Headquarters to determine a better process for working on water quality standards and how the EPA interacts with the states. • Reduced EPA steps from 50 to 26 (48%) • Reduced EPA handoffs from 17 to 14 (18%) • Reduced EPA decisions from 6 to 3 (50%) • Designed a meeting to take place to discuss upcoming WQS issues and how the entities will work together	

Dept	Year	Business Process	Old Process	New Process
DNR	2007	Geological Survey	Strategic Planning session: Accomplished the following: • SWOT Analysis • Determined need to work with an "Advisory Board" • Identified work to define role of the State Geologist	
DOC	2005	Offender Re-entry	Implemented: • Reception process • Targeted release date • Community Coordinator • Release Coordinator • Re-entry Plan • Communication / Teamwork	
DOC	2006	Procurement, Inventory Management & Distribution	Steps reduced 75%; delays reduced 98%	
DOM	2006	Emergency Evacuation and In-place Shelter	Established protocol and plan for state office buildings	
DOM	2007	Local Government Budget Analyst	Determined two new processes, ultimately heading towards a web based platform for local governments to access and change their data. New process • 52 steps, 11 Hand offs Web process • 13 steps, 10 Hand offs	
DPH-BME	2005	Disciplinary Investigative Process	Implemented: • Expanded screening process • Medical Advisor on staff • Board review checklist • Investigative game plan • Expanded use of electronic communication / record-keeping / database	
DPH-BME	2006	Peer Review	Delays reduced 73%; lead time reduced 51%	
DPS	2005	Intelligence Analysis	Implemented training to streamline analysis process	
DPS	2005	Life Safety Code (Fire Prevention Inspections)	Reduced the number of widespread or immediate jeopardy deficiencies 15-20%	
DPS	2005	Private Investigator Licensing	14 days	7 days
DPS	2006	Above Ground Storage Tanks	Reduced steps 27%; delays reduced 38%-92%	

Dept	Year	Business Process	Old Process	New Process
DPS	2006	Building Code Value Stream Mapping	Developed high-level process map for building health care and K-12 education facilities	
DPS	2006	Peace Officer Applications	Delays reduced 60%; steps reduced 41%; hand-offs reduced 52%	
DPS	2007	Fire and Arson Investigations	Developed policy priority of incidents to respond to; developed plan to eliminate backlog of open cases; created policy for responding with multiple agents when necessary	
ED-IBEE	2005	Teacher Licensing	Reduced steps 55%; hand-offs 42%	
ICN	2005	Customer Requests for Voice Services	Implementing: • Improved communications • Team approach • Project Manager accountability • Tracking number • Electronic processing/web order entry • Customer feedback	
IDR	2005	Tax Credit Analysis	Implementing: • Database design • Tracking credits transferred or • issued to pass-through entities • Desired reporting	
IFA	2006	Title Guaranty	Delays reduced 71%; steps reduced 27%	
IVH	2005	Medication Administration	8 hours	4 hours
IVH	2006	Maintenance Work Orders	Steps reduced by 62%; hand-offs reduced by 58%	
IVH	2006	Medical Appointments	Delays reduced 79%; steps reduced 66%	
IVH	2006	Admissions	Delays reduced 86%; steps reduced 62%	
IVH	2007	Medication Administration	Delays reduced 69%; steps reduced 49%; decisions reduced 81%; handoffs reduced 57%	
IWD	2005	Elevator Inspection (Plan review and Acceptance Inspections)	45.5 73.5 to 103.5	10.25 2.5 to 4.5
IWD	2006	OSHA Pre-Inspection	Steps reduced 58%; rework loops reduced by 66%	
IWD	2006	Workers Compensation Document Handling	Steps reduced 30%; delays reduced 21%	

Dept	Year	Business Process	Old Process	New Process
IWD	2007	Unemployment Insurance Monetary Determination Web Application Process	With implementation of EZ form, 60% of claims will see: • # of steps reduced from 188 to 46 (75%) • # of handoffs from 39 to 15 (62%) • # of loopbacks from 21 to 0 (100%) • # of decisions from 100 to 16 (84%)	
OEI	2007	Design for Lean Sigma event to create a world class process to launch the Office of Energy Independence	Developed Vision and Mission statements, and determined the initial focus including the Energy Independence Plan, implementation of the Iowa Power Fund and expanding the role of the Energy Coordinating Council.	